May 1, 2018 Water Supply Forecast Discussion

The Colorado Basin River Forecast Center (CBRFC) geographic forecast area includes the Upper Colorado River Basin, Lower Colorado River Basin, and Eastern Great Basin.

Water Supply Forecast Summary:

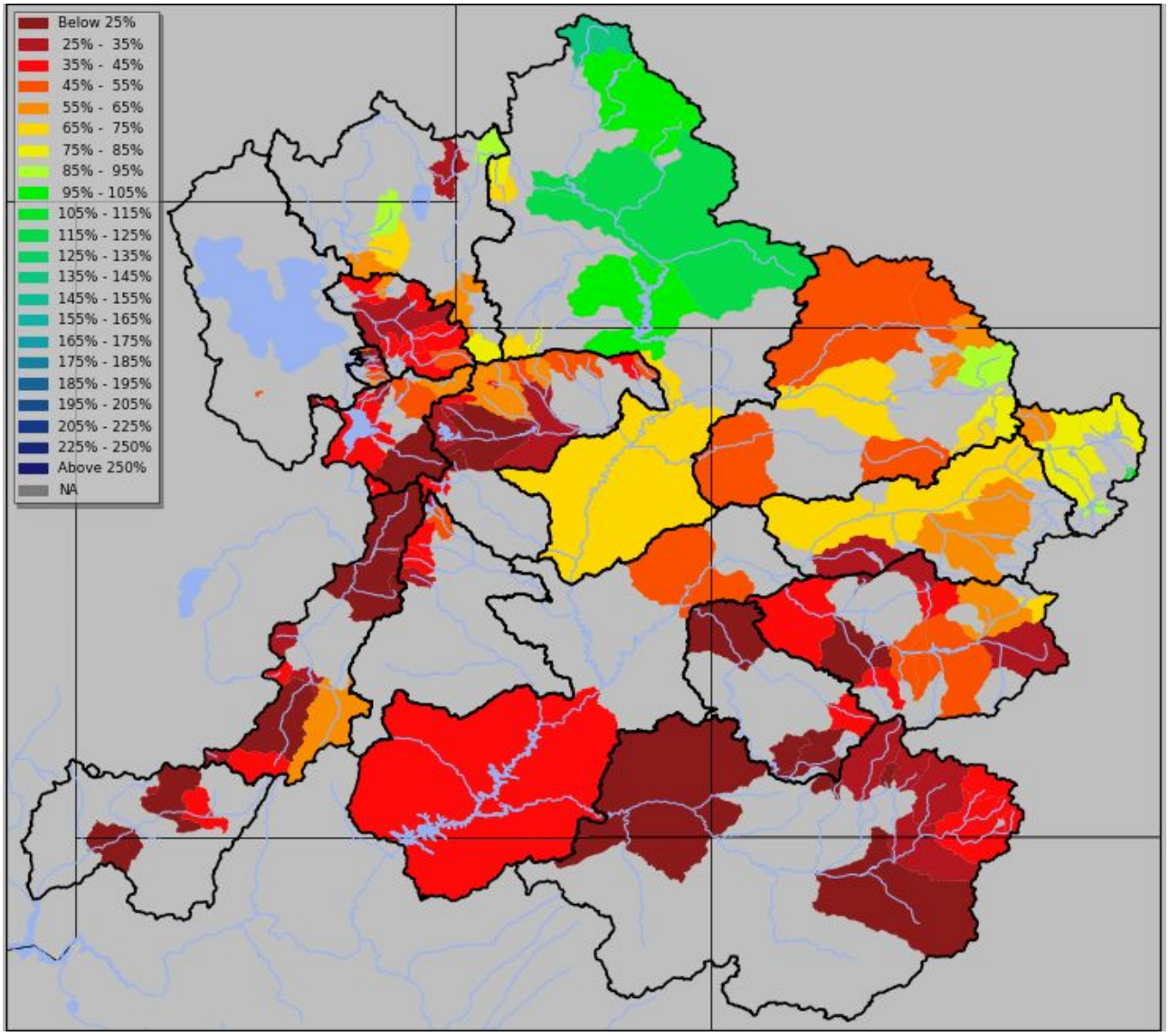
The month of April was generally dry over much of the CBRFC forecast area. While the month was not void of storm systems the greatest precipitation impacts were limited to the northern Bear River Basin, Yampa River Basin, Colorado mainstem headwaters, and parts of the Gunnison River Basin. In every month of the 2018 water year dating back to last October at least some part of the Colorado River Basin or Great Basin has experienced very dry conditions with monthly precipitation less than 50 percent of average. Only February of 2018 saw widespread precipitation that was near or above average in areas that are the primary contributors to the April-July runoff. However, even then impacts were limited to the upper Colorado River Basin as very dry conditions were widespread in the Great Basin.

April-July water supply volume forecasts increased from those issued in early April in parts of the Yampa River Basin, Colorado River headwaters, eastern headwaters of the Gunnison River Basin and some headwaters of the Green River Basin in Wyoming. The most significant decreases from early April occurred in the Dolores River Basin, Sevier River Basin, and Duchesne River Basin.

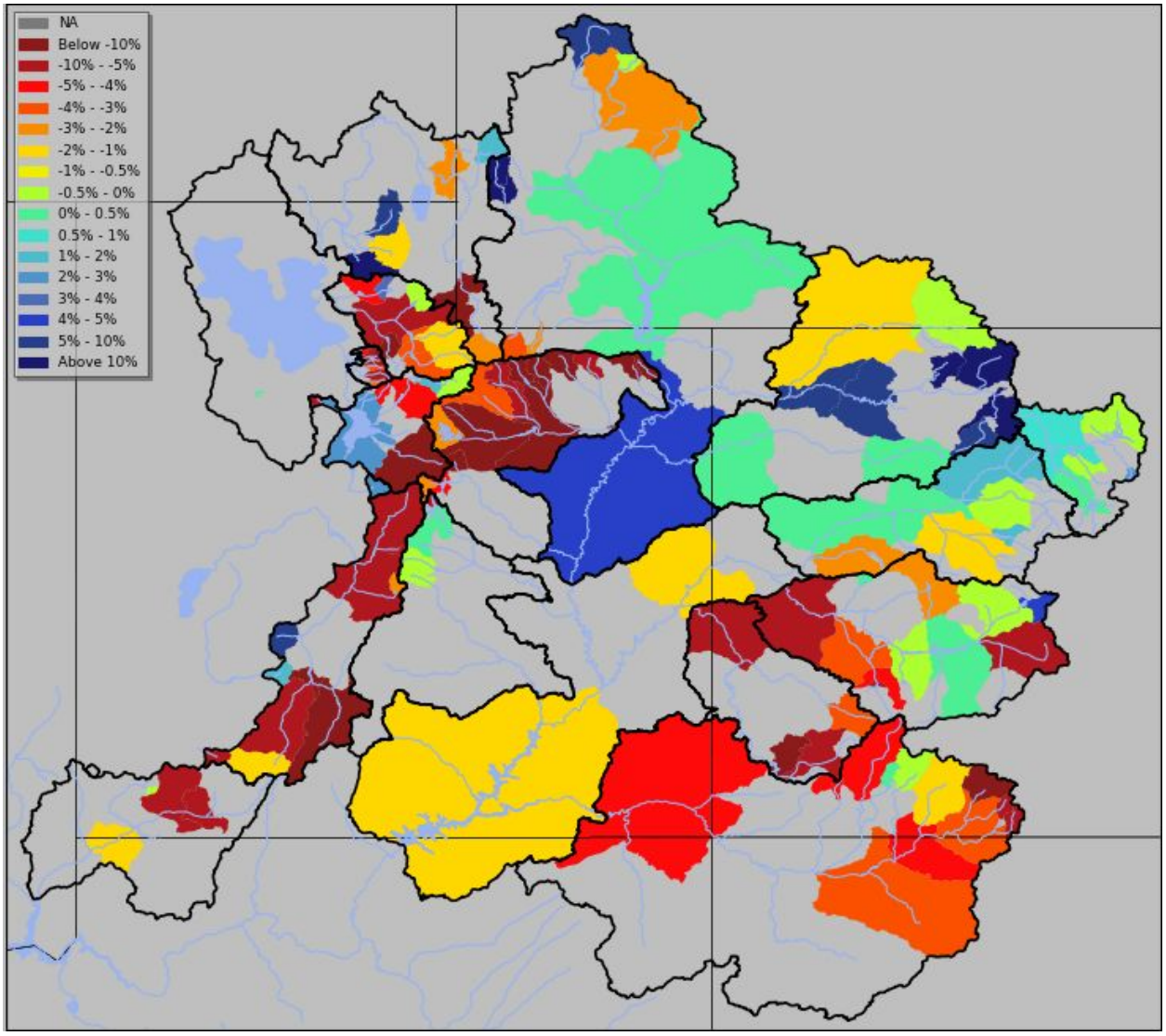
Forecasts are highest with respect to average in the Green River Basin of Wyoming, Colorado mainstem headwaters, and in northern parts of the Bear River Basin. Lowest forecasts with respect to average are in the southern basins of the forecast area and include the Dolores River Basin, San Juan River Basin, Sevier River Basin, and Virgin River Basin.

April-July unregulated inflow forecasts for some of the major reservoirs in the Upper Colorado River Basin include Fontenelle Reservoir 900 KAF (124% of average), Flaming Gorge 1000 KAF (102% of average), Blue Mesa Reservoir 350 KAF (52% of average), McPhee Reservoir 62 KAF (21% of average), and Navajo Reservoir 200 KAF (27% of average). The Lake Powell inflow forecast is 3.00 MAF or 42% of average.

Seasonal Water Supply Forecasts:



Upper Colorado, Great, Virgin River Basins: 2018 April-July forecast volumes as a percent of 1981-2010 average
(50% exceedance probability forecast)



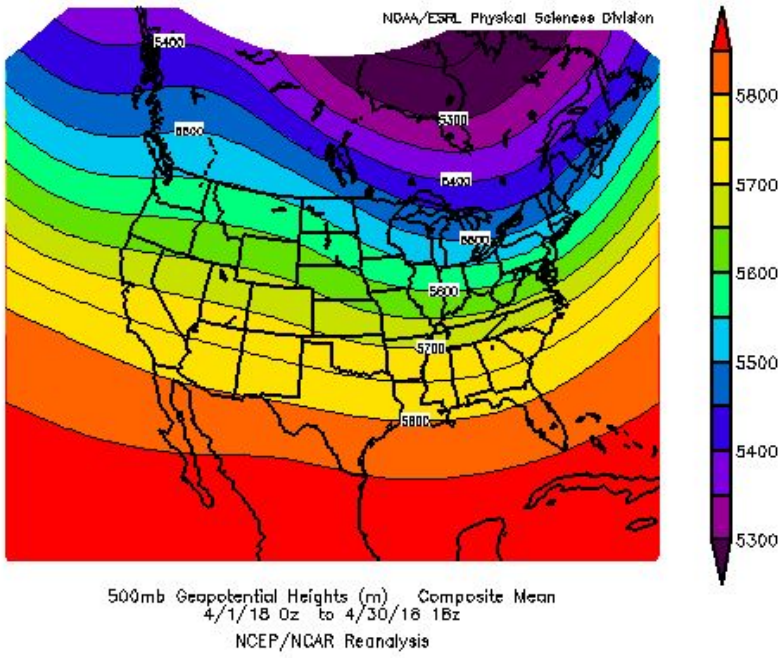
Upper Colorado, Great, Virgin River Basins: Difference in the forecasts between April 1st and May 1st 2018
(As a percent of the 1981-2010 April-July average)

For specific site water supply forecasts click here

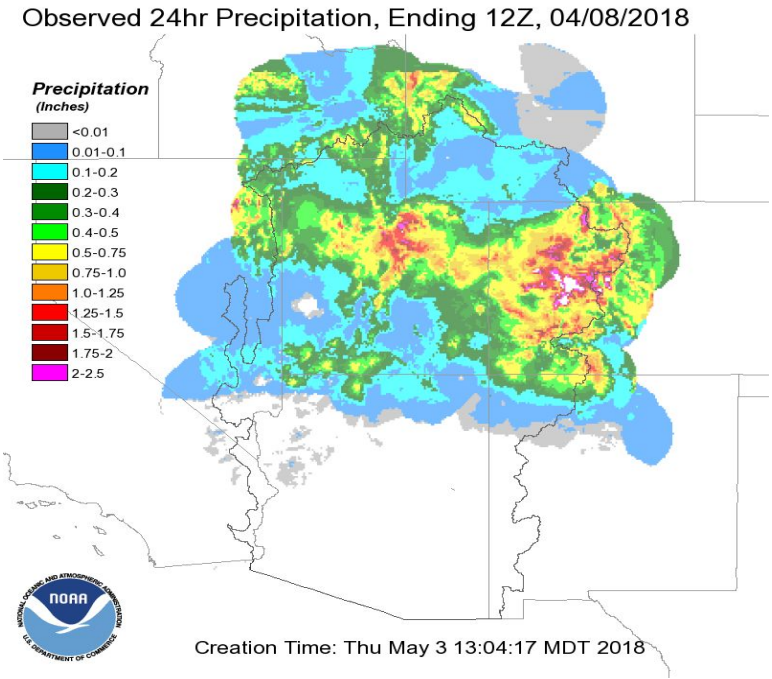
Water Supply Discussion

Weather Synopsis:

A high pressure ridge was the dominant weather pattern across the CBRFC forecast area through the majority of April. This pattern kept the storm track mostly north of the area. However, a few systems did clip the northern half of Utah, Colorado and Wyoming. One strong storm system in particular impacted much of the northern part of the basin on April 6-8. This system had plentiful moisture and resulted in high precipitation amounts across the mountains, particularly over the Yampa and Upper Colorado River Basins.



The mean atmospheric pattern during the month of April. Anomalous ridging over the Colorado Basin resulted in generally below normal precipitation and above normal temps, most pronounced over the southern half of Utah and Colorado.

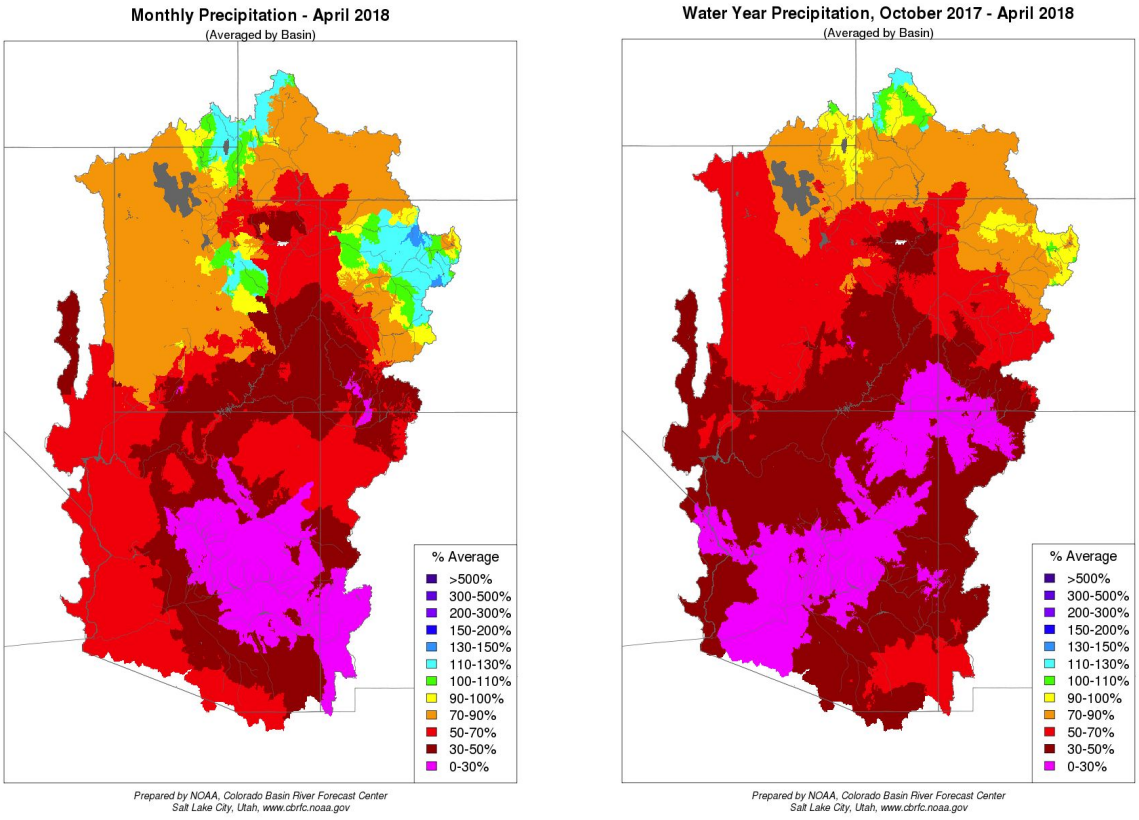


Observed 24-hr precipitation ending April 8. The moisture-laden storm system on April 6-8 brought widespread total precipitation amounts of 2-5 inches to the mountains of northern Utah/Colorado and Wyoming, a significant portion of the monthly precipitation.

Precipitation and Temperature:

Near to above average precipitation was not widespread over the CBRFC area in April. However, a few basins did recieve near to above average April precipitation including the northern Bear River Basin, Yampa River Basin, Colorado River headwaters, parts of the Gunnison River Basin, parts of the Green River basin in Wyoming, and tributaries to the Green River in central Utah. Remaining areas generally received below average precipitation during April with southwest Colorado, New Mexico and Arizona basins receiving 50 percent of average or less during the month.

The water year (October-April) precipitation image below continues to show near or above average precipitation limited to the Green River Basin headwaters in Wyoming, the extreme eastern headwaters of the Colorado River mainstem, and the far northern Bear River Basin in southern Idaho. Elsewhere water year conditions are generally 70 percent of average or less. Several sites in the San Juan, Dolores, Gunnison River Basins as well as sites in central and southeast Utah have water year (October-April) precipitation amounts that rank as the lowest on record. Several locations in the Duchesne River Basin have the second lowest water year precipitation on record.



Images: April 2018 and water year (Oct 2017-Apr 2018) precipitation graphics
(Averaged by basins defined in the CBRFC hydrologic model)

Maximum temperatures averaged over the month were above normal over the majority of the basin with the exception of parts of the Bear River basin in southern Idaho and the headwaters of the Yampa River and the Colorado River mainstem which were near normal.

Maximum and minimum monthly temperature deviation from average are displayed in the images below.

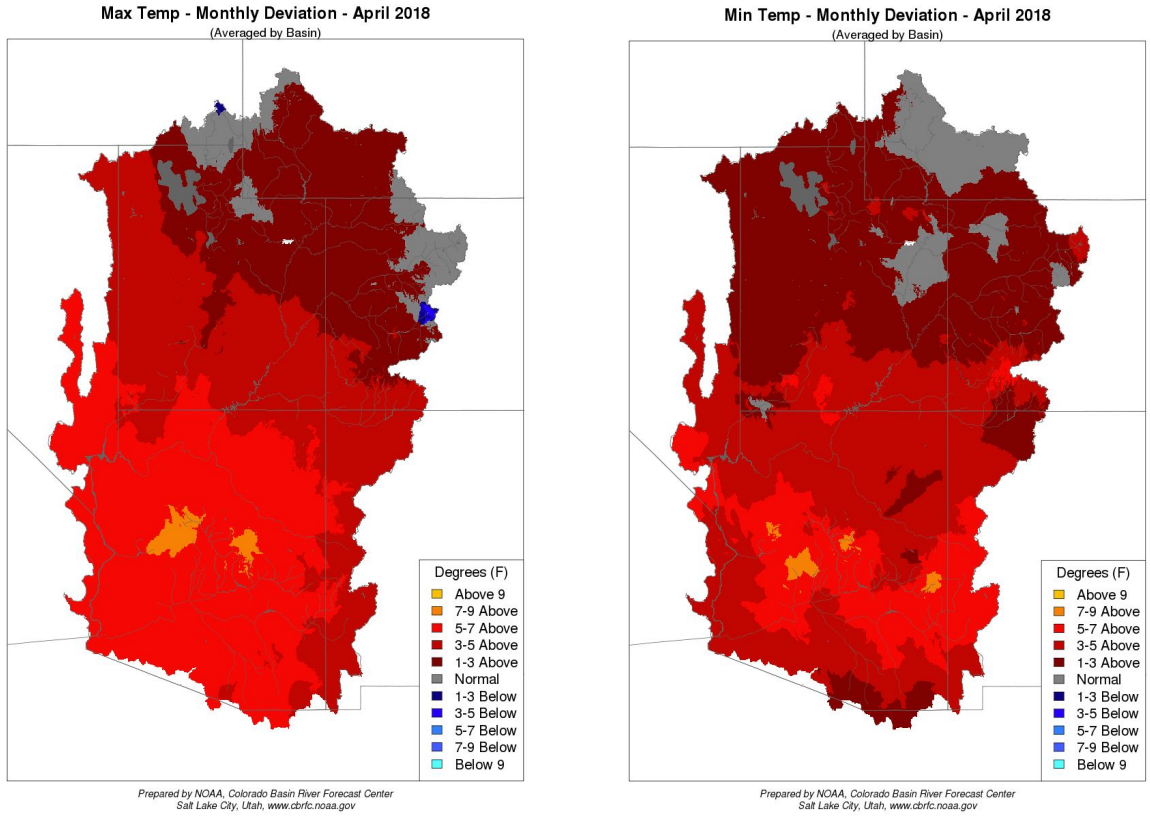


Image: Monthly maximum and minimum temperature departure from average for April 2018.
(Averaged by basins defined in the CBRFC hydrologic model)

Snowpack:

In the spring once the normal time of peak snowpack has passed, percent median snow water equivalent can be misleading and vary significantly day to day, as well as site to site, depending on the rate of snowmelt, new snow, and the magnitude of the median value. That being said, the map below showing the percent median snow at SNOTEL sites as of May 4th does correctly indicate widespread poor snowpack conditions throughout much of the Upper Colorado River Basin and Great Basin as of early May. The only basin with above normal snow conditions is the headwaters of the Green River Basin in Wyoming which is near 120 percent of median. While there are a handful of individual SNOTEL sites with near normal snowpack in the headwaters of the Colorado River above Kremmling the overall basin snowpack is below normal at this time at 85 percent of median. Elsewhere, current basin percent median values are below 50 percent in many areas, with values below 30 percent of median in the southern areas

including the San Juan, Dolores and Virgin River basins.

Not only are the current percent median values much below median but the maximum snow water equivalent values this season were also much below the historical seasonal peak values. The only basin that peaked above normal was the headwaters of the Green River Basin in Wyoming at near 130 percent of the seasonal median. The headwaters of the Colorado River above Kremmling peaked near the normal seasonal value, the Yampa River Basin snow peaked at 90 percent of the seasonal median, and the Bear River Basin peaked near 80 percent. Outside of those areas, the seasonal peak snowpack was generally 70 percent of median or less with the San Juan River Basin peak at just 55 percent of the seasonal median.

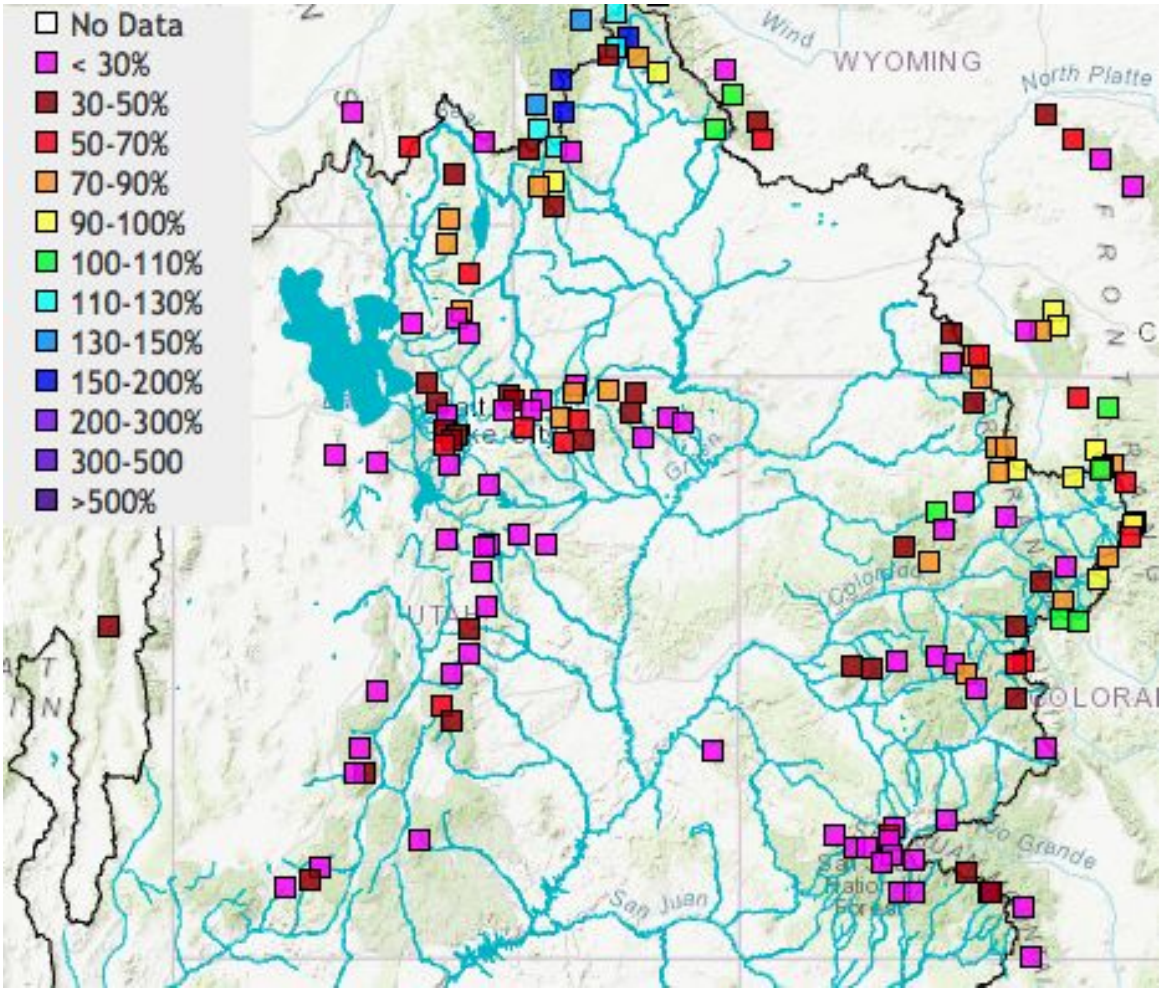
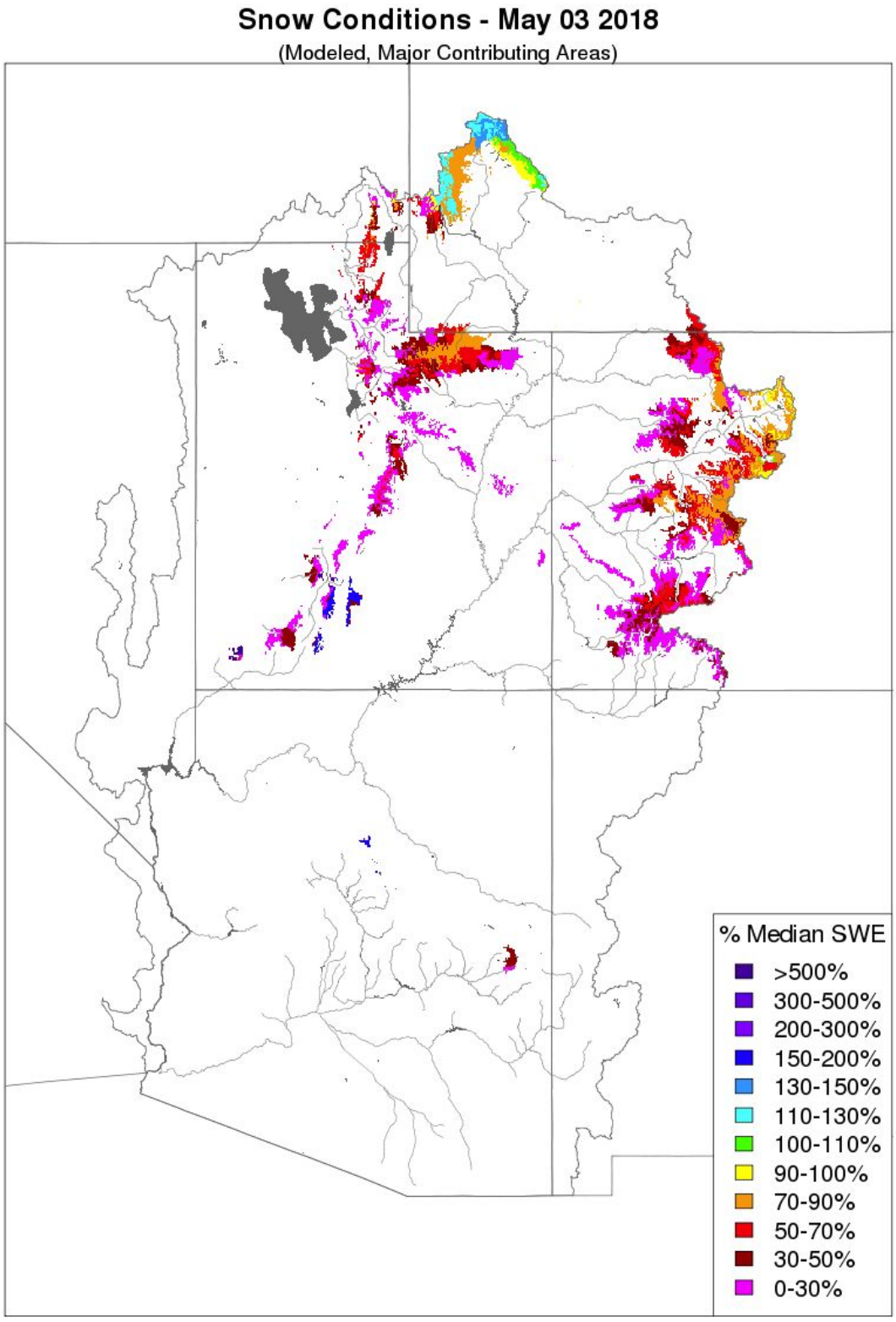


Image: Percent Median Snow Conditions as of May 3rd, 2018

The image below is the representation of snow in the CBRFC hydrologic model. Only those areas that provide the greatest contribution to the April-July runoff volumes are displayed. The snow represented in the model closely mirrors the SNOTEL image.

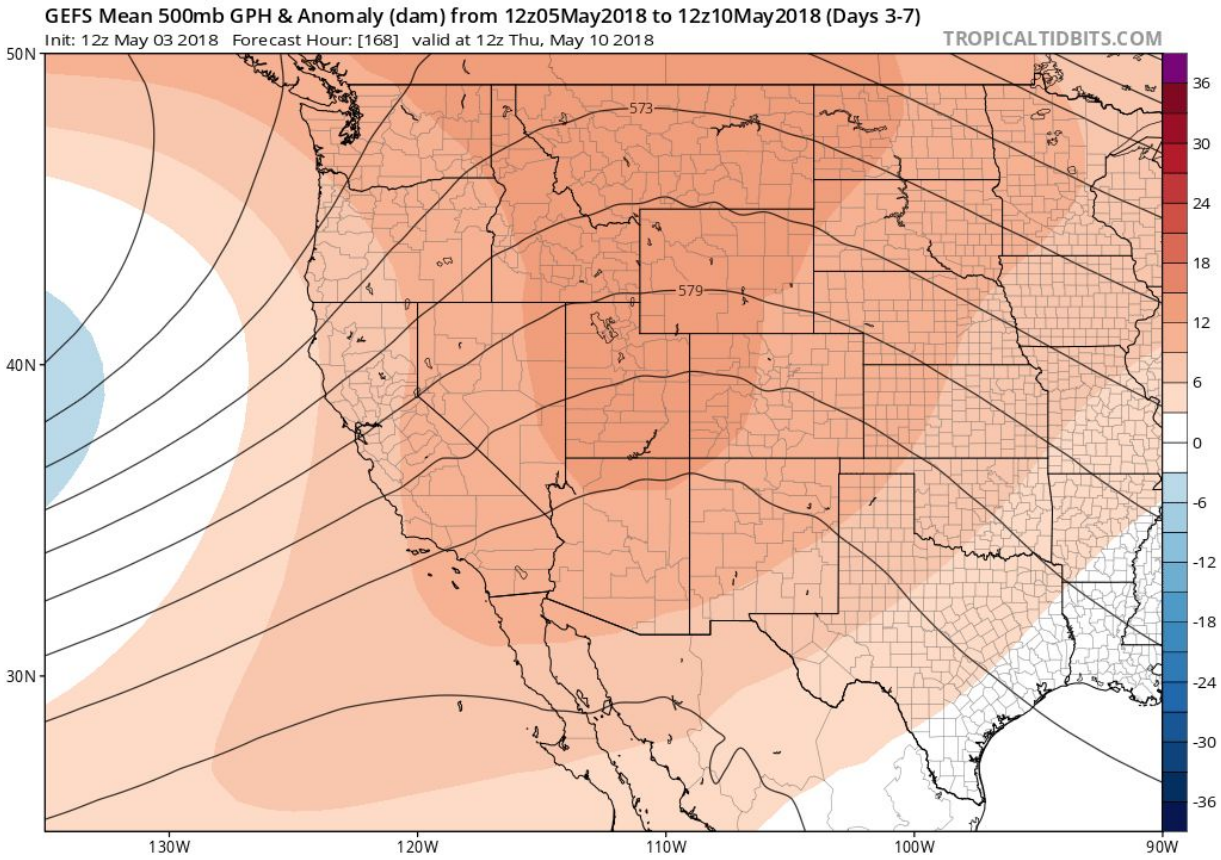


Modeled Snow: Snow representation from the CBRFC hydrologic model May 3rd, 2018

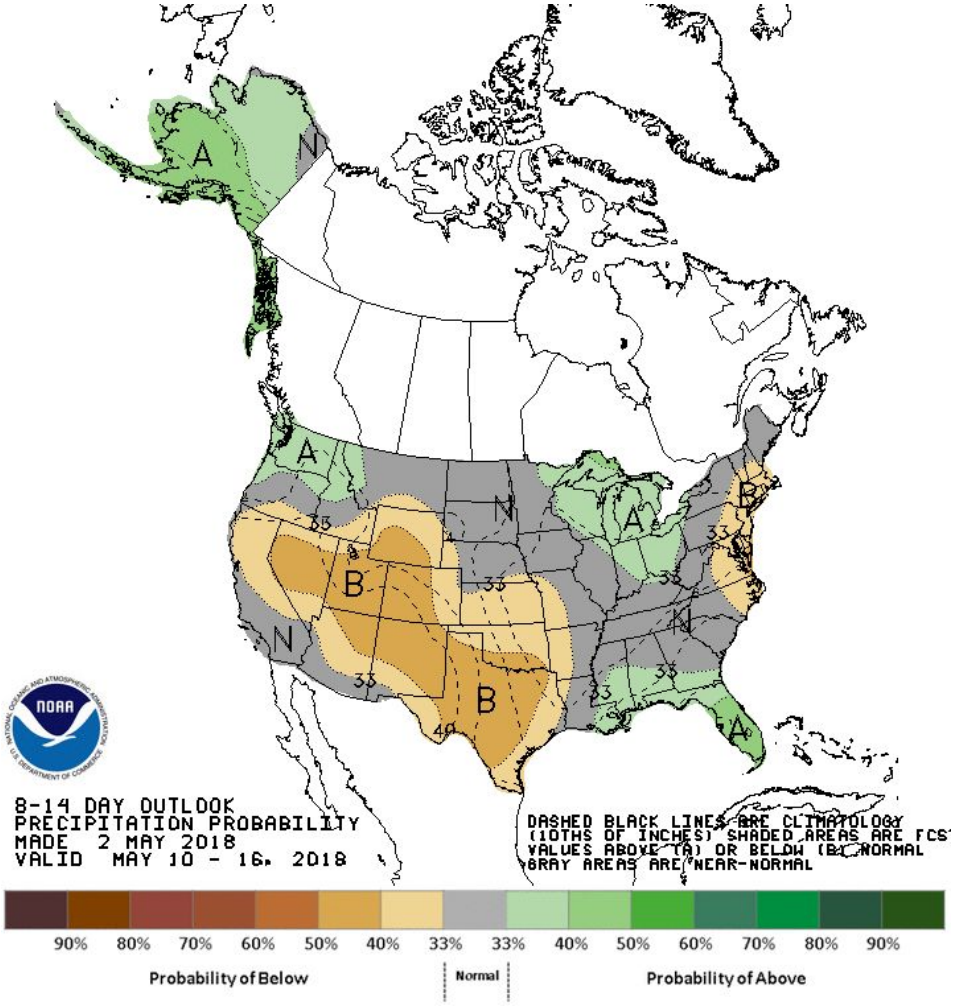
For updated SNOTEL information, click here.
For CBRFC hydrologic model snow conditions, click here

Upcoming Weather:

The storm system that brought widespread precipitation and cooler temperatures to much of the CBRFC forecast area over the first few days of May is now exiting the area. The weather pattern this weekend through next week will transition toward strong ridging over the Western U.S. (see image below). This will bring above normal temperatures, limited precipitation, and enhanced snowmelt across the area. Although forecast uncertainty is greater by the end of next week, the models suggest this ridge could remain locked across the area well into mid-month. The outlook over the May 10-16 period has below normal precipitation and above normal temperatures continuing to be favored.



Models show a strong ridge of high pressure developing this weekend through much of next week over the Western U.S. This will result in above normal temperatures and little if any precipitation over the entire Colorado River Basin.



NWS Climate Prediction Center 8-14 Day Precipitation Outlook for May 10-16, 2018.

End Of Month Reservoir Content Tables

- Green River Basin
- Upper Colorado River Basin
- San Juan River Basin
- Great Salt Lake Basin
- Sevier Basin

Basin Conditions and Summary Graphics

- Green River Basin
- Upper Colorado River Basin
- San Juan River Basin
- Great Salt Lake Basin
- Sevier River Basin
- Virgin River Basin